

Amendments to the claims:

1. (Currently amended): A homopolar machine comprising:
a shaft;
an armature coupled to the shaft and mounted so as to rotate with said shaft;
at least two stators that encircle the armature,
a negative bus connected to a first stator,
a positive bus connected to a second stator,
a first negative brush assembly carried by said first stator for contact with said armature at one location; and
a second negative brush assembly carried by said armature for contact with said second stator, as a result of their negative charge, the lifetime of said brushes is substantially extended compared to brushes positively charged.
2. (Original): The homopolar machine in accordance with claim 1, wherein each of said brush is part of an assembly that includes an actuator and a holder designed to effect said contact.
3. (Original): The homopolar machine in accordance with claim 2, wherein said holder includes a crosspiece that carries a plurality of brushes and which crosspiece slides between a pair of flat plates.
4. (Original): The homopolar machine in accordance with claim 1, wherein each of said brushes comprises flexible, solid, electrically conductive material.
5. (Original): The homopolar machine in accordance with claim 1, wherein each of said brushes comprises electrically conductive fibers made from copper or a copper alloy.
6. (Original): The homopolar machine in accordance with claim 1 wherein each of said brushes comprises electrically conductive foils of copper or a copper alloy.

7. (Original): The homopolar machine in accordance with claim 1 wherein said second negative brush is fixedly attached to said armature and means is included for moving said stator into contact therewith.

8. (Original): The homopolar machine in accordance with claim 1 which is configured to operate as a motor.

9. (Original): The homopolar machine in accordance with claim 1 which is configured to operate as a generator.

10. (Currently amended): A homopolar machine comprising:
a shaft;
an armature assembly coupled to the shaft that includes a cylinder having a pair of spaced apart generally radially extending flanges,
first and second stators arrays that encircle the armature assembly;
a negative bus connected to a first stator,
a positive bus connected to a second stator,
a first negative brush assembly carried by said first stator for contact with said armature at one location; and
a second negative brush assembly carried by said armature for contact with said second stator, as a result of their negative charge, the lifetime of said brushes is substantially extended compared to comparable positively charged brushes.

11. (Original): The homopolar machine in accordance with claim 10, wherein each said brush is part of an assembly that includes an actuator and a holder designed to effect said contact.

12. (Original): The homopolar machine in accordance with claim 11 wherein said holder includes a component mounted in fixed relation to said first stator and a second slidable component which carries said first negative brush.

13. (Original): The homopolar machine in accordance with claim 12 wherein said second slidable component carried a plurality of brushes and is slidable between a pair of parallel flat plates that form a part of said first component.

14. (Original): The homopolar machine in accordance with claim 13 wherein said fixed component includes a radially aligned stem formed with a pair of opposed parallel surfaces that are perpendicular to said flat plates and wherein said slidable component include a pair of flexible heads that engage said opposed surfaces.

15. (Original): The homopolar machine in accordance with claim 14 wherein said flexible heads include a stack of generally parallel ribbons cut by EDM from conductive metal.

16. (Original): The homopolar machine in accordance with claim 15 wherein said heads are mounted so that said ribbons are flexed against said opposed surfaces.

17. (Original): The homopolar machine in accordance with claim 10 wherein said second negative brush is fixedly attached to said other flange of said armature and means is included for moving said second stator into contact therewith.

18. (Currently amended): A method of operating a homopolar motor, which includes a field coil, a shaft, an armature coupled to the shaft and mounted so as to rotate with said shaft, at least two stators that encircle the armature, a negative bus connected to a first stator, and a positive bus connected to a second stator, which method comprises:

energizing the field coil in the homopolar motor; and

supplying current to said armature from said stators through brushes, so that all of [which] said brushes are negatively polarized and as a result of their negative charges have a lifetime that is substantially extended compared to their lifetime if they were instead positively charged.